66430 - Advanced design of home appliances

Información del Plan Docente

Academic Year	2017/18
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	536 - Master's in Mechanical Engineering
ECTS	4.5
Year	1
Semester	Second semester
Subject Type	Optional
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as

- Lectures, in which the theoretical contents will be explained and some problems will be solved.
- Case studies are an efficient complement to lectures.
- Practice sessions, in which different engineeting CAE tools are used to encourage practical learning.

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- Assignments are a global means of learning by applying all the acquired knowledge with the previously mentioned methodologies.

5.2.Learning tasks

The course includes the following learning tasks:

- **Lectures** (33 hours). Theoretical contents will be explained and some problems will be solved.
- **Practice sessions** (12 hours). They complement the learning of the lectures.
- **Assignments** (9 hours). Different activities will be proposed and supervised by the teacher. Group work.
- **Study** (27.5 hours). Autonomous work and individual study in a continuous way during the semester is recommended.
- **Assessment** (2.5 hours).

5.3.Syllabus

The course will address the following topics:

Section 1. Thermal

1. Energy Label.
2. Thermal simulation.
3. Design process, thermal requirements.
4. Selection of materials.

Section 2. Mechanical

1. Material families of materials and applications for home appliances.
2. Mechanical behavior of plastics: creep, fatigue, temperature dependance.
3. Influence of molding and machine on plastic components design.
4. Tools and methodologies for structural analysis.
5. Structural design of fridges, washing machines and hobs.
6. Equipment for noise and vibration measurement.
7. Modal tests.
8. Operational tests.

5.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website.

5.5.Bibliography and recommended resources

Bibliography can be consulted at Library website.